

5773

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

MAY 13 1935

Acc. No. _____

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. Patton, Director

State: California

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 42
Hydrographic }

LOCALITY

~~San Miguel Island, California~~

Santa Barbara Islands
Offshore San Miguel Island

1933, 35

CHIEF OF PARTY

O. W. Swainson

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO.
U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

MAY 13 1935

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 42

REGISTER NO. 5773

State California

General locality ~~San Miguel Island~~ Santa Barbara Islands

Locality Offshore San Miguel Island

Scale 1:40,000 Date of survey Apr. 1933 - Feb. 1935

Vessel PIONEER

Chief of Party O. W. Swainson

Surveyed by O. W. Swainson

Protracted by Lt. G. M. Marchand, H. J. Pulskamp, E. M. Prudames;
Draftsmen.

Soundings penciled by Lt. G. M. Marchand, H. J. Pulskamp, Draftsman.

Soundings in fathoms feet

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by _____

Inked by L. B. BERES + HONICK

Verified by L. B. BERES

Instructions dated November 18, 1932 and June 23, 19 34

Remarks: _____

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SHEET FIELD NO. 42

U.S.C. & G.S.S. PIONEER

O. W. Swainson, Commanding

AUTHORITY

This survey was made in accordance with instructions to the Commanding Officer of the Ship PIONEER for Project 120, dated November 18, 1932, and for Project HT-187, dated June 23, 1934.

LOCALITY

It covers the area outside the approximate 20 fathom curve around San Miguel Island, California.

SURVEY METHODS

The hydrography was started in April 1933 and the work called for in instructions of November 18, 1932 completed in May, 1933. Some supplemental lines were run in October 1934, and February, 1935. The work called for in instructions of June 23, 1934, was done during the month of February, 1935.

All soundings were obtained with the fathometer. Quite a few vertical casts were taken without obtaining the position.

CONTROL

The control for the sheet was recovered 1858 and 1871 triangulation stations, and topographic features of the survey of sheet 1242 and 1325, supplemented by a few hydrographic stations. Some of the offshore area was controlled by R.A.R. stations at Santa Rosa, San Nicolas, and San Miguel Islands. (No RAR on this sheet)

Velocity tests were made. These were given considerable weight but the triangle formed by the three arcs was also taken into consideration.

The control of the northwest portion of the sheet in the vicinity of Richardson Rock is weak. The position of Seal Pt. 1871 was taken from the 1904 publication and used on the boat sheet, and smooth sheet. In ~~revising~~ ^{inspecting} the sheet this position was found to be in error. The seconds of latitude in meters should be 772.9 instead of 727.9. This error necessitated the reploting of about two hundred positions and their corresponding soundings with the exception of 21 to 39 J. The change was too small between those positions to warrant changing the soundings.

FATHOMETER CORRECTIONS

A detailed description of the computation of the fathometer corrections is contained in the 1933 Season's Report and descriptive report for sheet 41. Copies are attached to this report.

SLOPE CORRECTIONS

No slope corrections were applied.

TIDES

Observations from the Santa Barbara gage were used to reduce the soundings.

CURRENT OBSERVATIONS

No regular current observations were made. Moderate currents were noticed northwest of San Miguel and between San Miguel and Santa Rosa Islands. A series of current observations should be made between San Miguel Island and Richardson Rock as this is an important locality for both Navy and commercial vessels.

BOTTOM CHARACTERISTICS

Very few bottom samples were obtained. Therefore, use the bottom character shown on original hydrographic sheets.

DANGERS AND SHOALS

The area off the north and western sides of San Miguel to the 50 fathom curve beyond Richardson Rock has very irregular bottom. Abrupt changes of 15 to 30 fathoms are not uncommon. The area should be wire dragged. No dangers to surface navigation were found on this sheet but it is not certain none exists.

advisable if area is

to be used by any Navy submarine,

BUOY

See page 2, Vol. 1 for location of lighted whistle buoy; also note at position 128J. Robt. W. Knox also located the buoy. The buoy went adrift in June 1933 and was replaced soon thereafter by the Lighthouse Service.

SHOALS

Latitude $34^{\circ} 01.2'$; longitude $120^{\circ} 27.9'$. Vicinity of buoy. Least depth 11 fathoms between 136 and 137J and 5H. This shoal was developed also by Lt. Robt. W. Knox. ✓

Latitude $34^{\circ} 07.0'$, longitude $120^{\circ} 31.8'$. Least depth ²⁸ 82 fathoms surrounded by general depths of 48 to 50 fathoms. See position 64L. ✓

Latitude $34^{\circ} 07.6'$, longitude $120^{\circ} 27.6'$. Least depth 14 fathoms. Position 4a, starboard motorsailer (Vol. 6). A sounding of 13 fathoms, 5 feet hand lead was obtained from small boat which sounded over the area for twenty minutes. This area was covered with a wire sweep set at ten fathoms and hung up on this shoal. (See "a" day, starboard motorsailer (Vol. 6). This same general area was swept on "b" day also. See overlay for area covered by the sweep. ✓

Latitude $34^{\circ} 07.6'$, longitude $120^{\circ} 27.6'$. Least depth 18 fathoms, 1 foot. Position 2L. Obtained by sounding from the launch with hand lead in vicinity of marker buoys. (Same shoal as prev par.) ✓

1 Latitude $34^{\circ} 07.4'$, longitude $120^{\circ} 26.9'$. Least depth of 14 fathoms was obtained by the fathometer between positions 71 and 72 J. This spot was developed by Lt. Robt. W. Knox. The area was covered by a sweep set at 10 fathoms. See overlay. ←

2 Latitude $34^{\circ} 05.6'$, longitude $120^{\circ} 21.6'$. Two 13 fathom and a 17 fathom spot which are fathometer soundings. ←

3 15 fathoms was obtained by the fathometer at latitude $34^{\circ} 03.8'$, longitude $120^{\circ} 19.4'$. It was not developed by the PIONEER as it was thought it had been investigated by the party of Robt. W. Knox. X

4 Several indications of shoals were obtained on the inner lines. These were given to Robt. W. Knox for verification. See his sheets, and accept his soundings where discrepancies occur. ✓

JUNCTION WITH OTHER SHEETS

5 A good junction was made with surrounding sheets. The soundings at the junctions check very well. The launch soundings of Robt. W. Knox inshore of sheet 42 should be given preference if there are any discrepancies in the overlapping areas. ✓

O. W. Swainson
Chief of Party

ABSTRACT OF COMPARISONS

Sheet Field No. 42.

Date	Pos. & Day	V. C.	Fath. Rdg.	Fath. Cor'n	Corrected Fath.	V. C. - Fath.	
------	------------------	-------	---------------	----------------	--------------------	---------------	--

BEFORE September, 1933

No. 2 Hyd. - Small Oscillator.

4/19/33	59C	70	72	$-\frac{1}{2}$	71 $\frac{1}{2}$	-1.5	SD
	135C	50	73	$-\frac{1}{2}$ -3	69 $\frac{1}{2}$.5	LD
	135C	50	50.1	$-\frac{1}{2}$	49.6	.4	
20	15D	51.6	52.3	$-\frac{1}{2}$	51.8	-.2	
	94D	289 $\frac{1}{2}$	286	-5	281	8.5	On Slope
			268	-5 +7	270	19.5	FRx6
5/7	83G	114	113	-2	111	3.0	
9	52J	48.5	49.5	$-\frac{1}{2}$	49.0	-.5	
		48.6	49	$-\frac{1}{2}$	48.5	.1	
						Av. +0.26	

No. 3 Hyd. - Big Oscillator

4/19/33	59C	17.2	17.7	-1	16.7	.5	
		16.9	17.5	-1	16.5	.4	
		69.0	70.5	0 -3	67.5	1.5	LD
	135C	49.7	49.8	0	49.8	-.1	
20	15D	51.6	52.7	0	52.7	-1.1	
5/8	24H	37.7	37.5	0	37.5	.2	
9	52J	48.5	49.0	0	49.0	-.5	
		48.7	48.4	0	48.4	.3	
	147J	27.0	28.2	0	28.2	-1.2	
		26.4	26.9	$-\frac{1}{2}$	26.4	-	
	148J	25.9	26.2	$-\frac{1}{2}$	25.7	.2	
						Av. +0.2	

AFTER September, 1933.

2/8/35	60M	21.0	18.5	+2	20.5	+0.5	
		21.2	18.6		20.6	0.6	
		21.3	18.6		20.6	0.7	
		20.9	18.6		20.6	0.3	
		20.7	18.5		20.5	0.2	
2/21	34N	43.2	42.5		44.5	-1.3	
		42.7	42.0		44.0	-1.3	
		43.6	41.5		43.5	-0.1	
		43.9	42.0		44.0	-0.1	
		43.2	41.5		43.5	-0.3	
	46N	34.8	33.0		35.0	-0.2	
		34.7	33.0		35.0	-0.3	
	98N	50.5	48.8		50.8	-0.3	
2/25	34P	39.4	37.2		39.2	+0.2	
		39.0	37.0		39.0	0.0	
						Av. -0.3	

666666

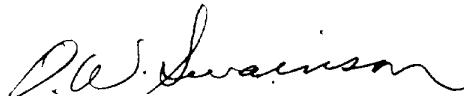
STATISTICS

Sheet Field No. 42.

Day	Date 1933	Vol.	St. Mi. Sndg. Lines	No. of Sndgs.	No. of Positions
A	4/9		- - -	- - -	- - -
B	4/18	1	58.6	384	85
C	4/19	1	85.0	727	135
D	4/20	1	85.0	409	95
			<u>209.6</u>	<u>1520</u>	<u>315</u>
D	4/20	2	44.0	390	73
E	5/5	2	16.0	227	29
F	5/6	2	10.0	73	13
G	5/7	2	104.0	817	158
H	5/8	2	<u>18.0</u>	<u>195</u>	<u>30</u>
			192.0	1702	303
H	5/8	3	90.2	910	158
J	5/9	3	<u>69.0</u>	<u>747</u>	<u>129</u>
			159.2	1657	287
J	5/9	4	8.0	85	18
K	5/23	4	25.0	261	39
L	10/5/34	4	43.1	665	93
M	2/8/35	4	33.6	371	60
N	2/21	4	<u>26.1</u>	<u>297</u>	<u>41</u>
			135.8	1679	251
N	2/21	5	43.3	476	72
P	2/25	5	<u>69.2</u>	<u>733</u>	<u>140</u>
			112.5	1209	212
a	2/8	6	Wire Sweeping		
b	2/25	6	do do		
TOTALS			809.1	7767	1368

CHIEF OF PARTY'S REPORT ON
INSPECTION OF FIELD RECORDS - SHEET 42

I examined most of the soundings on the smooth sheet. Lt. G. M. marchand then examined the sheet and finding an error in the position of Seal Point replotted all positions which had used Seal Point in the fix. I do not believe there are any material mistakes on the sheet.



O. W. Swainson,
Chief of Party,
Commanding Ship PIONEER.

FATHOMETER CORRECTIONS

Field sheets Nos. 41, 42, 45, 46, 121, 122, 123.

From beginning of season to October 1, 1933.

Project number 120.

British Admiralty Tables were used to obtain theoretical velocities of sound through sea water, and are tabulated in meters per second.

TABLE A

Column 1 is true depth of water. Due to the hydrophone-oscillator base line being at a depth of two fathoms below the surface, the initial depth was taken as 2 fathoms.

Column 2 is the salinity at different depths as scaled from a curve plotted with data furnished by the Scripps Institute of Oceanography at La Jolla, Calif. These salinities were obtained by a representative of the Scripps Institute on the Steamer PIONEER, west of San Miguel Island.

Column 3 is the temperature as scaled from a curve plotted with data taken on sheets 41 and 121. There was another curve (see blueprint) but since the corrections as computed from both curves differed by only 0.1 fathom up to 200 fathoms, the corrections as figured from the first curve were used. At depths over 200 fathoms the two curves are practically coincident.

Column 4 is the velocity of sound through sea water as taken from the British Admiralty Tables at each depth.

Column 5 is the mean of the velocities from the surface to each succeeding depth.

Column 6 is D, or $\frac{1}{2}$ the distance the sound travels from the oscillator to the bottom and back to the hydrophone for the Number 3 (Navy rat) Hydrophone and Large Oscillator combination.

Column 7 is the uniform scale reading on a fathometer for each true depth of water. This computation was made as follows: since the fathometer speed was 248 r.p.m. or 4.133 r.p.s., a theoretical velocity of 826.6 fathoms per second was used. The uniform scale reading equals $\frac{1511.8 \text{ m/s}}{\text{mean velocity (m/s)}} \times D$.

Column 8 is the correction to the existing non-uniform scale of the fathometer. This correction is necessary only in that part of the dial between zero and twenty-five fathoms, the rest of the scale being uniform. This column is left blank where it coincides with column 7.

In column 9 will be found the theoretical corrections, for the Number 3 Hydrophone-Large Oscillator combination, which is equal to column 1 minus column 8.

Column 10 is the index correction (I.C.) from Table B.

Column 11 is the final correction to the fathometer and equals column 9 plus column 10, this for the Number 3 Hydrophone-Large Oscillator.

Column 12 is D for the Number 2 Hydrophone-Small Oscillator combination.

Column 13 is the uniform scale reading for the same combination (refer to column 6 for method of computation).

Column 14 is the correction to the existing non-uniform scale, corresponding to column 7.

Column 15 is the total theoretical correction for Number 2 Hydrophone-Small Oscillator, and equals column 1 minus column 14.

Column 16 is I.C. (computed in Table C)

Column 17 is the final fathometer correction, column 15 plus column 16, for the Small Oscillator-Number 2 Hydrophone combination.

TABLE B is the comparison of the fathometer readings, Number 3 Hydrophone-Large Oscillator, with the vertical casts to determine an index correction for this combination.

TABLE C is the comparison of the fathometer readings, Number 2 Hydrophone-Small Oscillator, with the vertical casts to determine an index correction for this combination.

In TABLE D is listed the final corrections which are entered in the sounding records. These corrections are obtained by plotting final corrections against indicated depths on curves and scaling the depth ranges for each correction therefrom.

TABLE A (all sheets except 43 & 44 up to Oct. 1, 1933)

No. 3 Hydrophone Big Oscillator

True Depth	Salinity o/oo	Temp. 41&121	Theor. velocity	Mean Th. velocity	D	Uniform scale rdg.	Non-unif. scale rdg.	Theor. I.C.	Final Corrn.	
1	2	3	4 m/s	5	6	7	8	9	10	11
2	33.60	13.1	1496.2							
4		13.1	96.2	1496.2	8.0	8.1	7.8	-3.8	-0.8	-4.6
6		13.1	96.2	96.2	8.7	8.8	8.4	-2.4		-3.2
8	.70	13.0	96.1	96.2	9.8	9.9	9.7	-1.7		-2.5
10		13.0	96.0	96.1	11.1	11.2	11.0	-1.0		-1.8
12		12.9	95.8	96.1	12.6	12.7	12.6	-0.6		-1.4
14		12.8	95.6	96.0	14.3	14.4	14.3	-0.3		-1.1
16		12.7	95.3	95.9	16.0	16.2	16.1	-0.1		-0.9
18		12.6	95.0	95.8	17.8	18.0	17.9	0.1		-0.7
20		12.5	94.9	95.7	19.6	19.8	19.8	0.2		-0.6
24	.80	12.2	94.0	95.4	23.3	23.6		0.4		-0.4
28		11.8	92.8	95.1	27.1	27.4		0.6		-0.2
32		11.4	91.6	94.6	31.0	31.4		0.6		-0.2
42	.90	10.7	89.3	93.6	40.8	41.2		0.8		0.0
52		10.2	87.9	92.6	50.6	51.2		0.8		0.0
62		9.8	86.8	91.8	60.5	61.3		0.7		-0.1
72	34.00	9.4	85.8	91.0	70.4	71.4		0.6		-0.2
82		9.1	85.0	90.4	80.4	81.5		0.5		-0.3
92		8.8	84.2	89.8	90.4	91.7		0.3		-0.5
102		8.6	83.8	89.2	100.3	101.8	101.6	0.4		-0.4
112	.10	8.4	83.3	88.7	110.3	112.0	111.8	0.2		-0.6
122		8.2	83.0	88.3	120.2	122.1		-0.1		-0.9
142		8.0	82.9	87.6	140.2	142.5		-0.5		-1.3
162	.20	7.8	82.7	87.0	160.2	162.9		-0.9		-1.7
182		7.4	82.2	86.5	180.2	183.3		-1.3		-2.1
202		7.0	81.4	86.0	200.2	203.7	203.4	-1.4		-2.2
242	.30	6.5	80.5	85.2	240.2	244.5		-2.5		-3.3
282		6.0	79.9	84.6	280.2	285.4		-3.4		-4.2
322		5.6	79.6	84.0	320.2	326.2		-4.2		-5.0
362		5.2	79.7	83.6	360.2	367.1		-5.1		-5.9
402		4.9	79.8	83.2	400.2	407.9	407.6	-5.6		-6.4
442	.40	4.6	79.9	83.0	440.1	448.6		-6.6		-7.4
482		4.4	80.1	82.7	480.1	489.3		-7.3		-8.1
522		4.2	80.7	82.6	520.1	530.1		-8.1		-8.9
562		4.0	81.3	82.5	560.1	571.0		-9.0		-9.8
602		3.8	81.8	82.5	600.1	612		-10.0		-10.8
642	.50	3.6	82.3	82.5	640.0	652		-10.0		-10.8
682		3.4	82.7	82.5	680	693		-11.0		-11.8
722		3.3	83.4	82.6	720	734		-12.0		-12.8
762		3.1	84.2	82.7	760	775		-13.0		-13.8
802		3.0	84.9	82.8	800	815		-13.0		-13.8
842		2.8	85.5	82.9	840	856		-14.0		-14.8
882		2.6	86.3	83.1	880	897		-15.0		-15.8
922		2.5	87.3	83.2	920	937		-15.0		-15.8
962		2.4	88.0	83.4	960	978		-16.0		-16.8
1002	.60	2.4	89.1	83.6	1000	1019		-17		-17.8
1042		2.3	90.1	83.8	1040	1060		-18		-18.8
1082		2.2	91.2	84.1	1080	1101		-19		-19.8
1122		2.2	92.3	84.4	1120	1141		-19		-19.8
1162		2.1	93.4	84.7	1160	1181		-19		-19.8
1202		2.1	94.5	85.0	1200	1222		-20		-20.8
1242		2.1	95.7	85.4	1240	1262		-20		-20.8

TABLE A (CONTINUED) No. 3 Hydrophone Big Oscila

1	2	3	4	5	6	7	8	9	10	11
1282	34.65	2.1	1497.0	1495.7	1280	1303	-22	-21	-0.8	-21.8
1322		2.0	98.2	86.1	1320	1343		-21		-21.8
1362		2.0	99.4	86.5	1360	1383		-21		-21.8
1402		2.0	1500.7	86.9	1400	1423		-21		-21.8
1442		2.0	02.0	87.3	1440	1464		-22		-22.8
1482		2.0	03.2	87.7	1480	1504		-22		-22.8
1522		1.9	04.4	88.1	1520	1544		-22		-22.8
1562		1.9	05.7	88.5	1560	1584		-22		-22.8
1602		1.9	06.9	89.0	1600	1624		-22		-22.8
1642		1.9	08.1	89.5	1640	1664		-22		-22.8
1682		1.8	09.3	89.9	1680	1704		-22		-22.8
1722		1.8	10.7	90.4	1720	1744		-22		-22.8
1762		1.8	11.9	90.8	1760	1784		-22		-22.8
1802		1.8	13.1	91.3	1800	1824		-22		-22.8
1842		1.8	14.4	91.8	1840	1864		-22		-22.8
1882		1.8	15.6	92.3	1880	1904		-22		-22.8
1922		1.8	16.9	92.8	1920	1944		-22		-22.8
1962		1.7	18.2	93.3	1960	1984		-22		-22.8
2002		1.7	19.4	93.8	2000	2023		-21		-21.8
2042		1.7	20.6	94.3	2040	2063		-21		-21.8
2082	.70	1.7	21.9	94.9	2080	2103		-21		-21.8
2122		1.7	23.2	95.4	2120	2143		-21		-21.8

TABLE A (CONTINUED) No. 2 Hydrophone, Small Oscillator

COLUMNS 1,2,3,4, & 5 same as No. 3, Big Oscillator					HEADINGS SAME AS ABOVE			15	16	17
					12	13	14			
2										
4					2.8	2.8	2.4	1.6	-1.7	-0.1
6					4.5	4.6	4.0	2.0		0.3
8					6.3	6.4	5.8	2.2		0.5
10					8.2	8.3	8.0	2.0		0.3
12					10.2	10.3	10.1	1.9		0.2
14					12.2	12.3	12.1	1.9		0.2
16					14.1	14.3	14.2	1.8		0.1
18					16.1	16.3	16.2	1.8		0.1
20					18.1	18.3	18.2	1.8		0.1
24					22.1	22.3		1.7		0.0
6688					26.1	26.4		1.6		-0.1
32					30.1	30.5		1.5		-0.2
42					40.1	40.6		1.4		-0.3
52					50.1	50.7		1.3		-0.4
62					60.1	60.9		1.1		-0.6
72					70.1	71.0		1.0		-0.7
82					80.1	81.2		0.8		-0.9
92					90.0	91.3		0.7		-1.0
102					100	101.5	101.3	0.7		-1.0
112					110	111.7	111.5	0.5		-1.2
122					120	121.9		0.1		-1.6
142					140	142.3		-0.3		-2.0
162					160	162.6		-0.6		-2.3
182					180	183.0		01.0		-2.7

TABLE A (CONTINUED) No. 2 Hydrophone, Small Oscillator

1	12	13	14	15	16	17
202	200	203.5	203.0	-1.0	-1.7	-2.7
242	240	244.2		-2.2		-3.9
282	280	285.2		-3.2		-4.9
322	320	326.0		-4.0		-5.7
362	360	367.0		-5.0		-6.7
402	400	407.7	407.4	-5.4		-7.2
442	440	448.5		-6.5		-8.2
482	480	489.2		-7.2		-8.9
522	520	530		-8.0		-9.8
562	560	571		-9.0		-10.7
602	600	612		-10.0		-11.7
642	640	652		-10.0		-11.7
682	680	693		-11		-12.7
722	720	734		-12		-13.7
762	760	775		-13		-14.7
802	800	815		-13		-14.7
842	840	856		-14		-15.7
882	880	897		-15		-16.7
922	920	937		-15		-15.7
962	960	978		-16		-16.7
1002	1000	1019		-17		-18.7
1042	1040	1060		-18		-19.7
1082	1080	1101		-19		-20.7
1122	1120	1141		-19		-20.7
1162	1160	1181		-19		-20.7
1202	1200	1222		-20		-21.7
1242	1240	1262		-20		-21.7
1282	1280	1303		-21		-22.7
1322	1320	1343		-21		-22.7
1362	1360	1383		-21		-22.7
1402	1400	1423		-21		-22.7
1442	1440	1464		-22		-23.7
1482	1480	1504		-22		-23.7
1522	1520	1544		-22		-23.7
1562	1560	1584		-22		-23.7
1602	1600	1624		-22		-23.7
1642	1640	1664		-22		-23.7
1682	1680	1704		-22		-23.7
1722	1720	1744		-22		-23.7
1762	1760	1784		-22		-23.7
1802	1800	1824		-22		-23.7
1842	1840	1864		-22		-23.7
1882	1880	1904		-22		-23.7
1922	1920	1944		-22		-23.7
1962	1960	1984		-22		-23.7
2002	2000	2023		-21		-22.7
2042	2040	2063		-21		-22.7
2082	2080	2103		-21		-22.7
2122	2120	2143		-21		-22.7

In order to simplify the entering of the final corrections in the Sounding Volumes these corrections were plotted on a curve with an ordinate of finabmeter corrections and an abscissa of Fathometer readings. A copy of the corrections as taken from the curves is enclosed.

TABLE B No.3 Hydrophone, Big Oscillator
Comparison of the Fathometer Readings and The Vertical Casts.

Fathometer Reading	Theor. Corr.	Theor. Fathometer	V.C.	Diff.	Fathometer Reading	Theor. Corr.	Fath.	V.C.	Diff.
17.5	0.1	17.6	16.9	-0.7	113	0.0	113.0	114.3	1.3
17.7	0.1	17.8	17.2	-0.6	238	-2.4	235.6	230.0	-5.6
18.0	0.1	18.1	17.0	-1.1	238	-2.4	235.6	230.0	-5.6
22.2	0.3	22.5	22.0	-0.5	333	-4.0	329.0	329.0	0.0
26.2	0.6	26.8	25.9	-0.9	628	-10	618	626	+18
26.9	0.6	27.5	26.4	-1.1	645	-10	635	636	1
28.2	0.6	28.8	27.0	-1.8	927	-15	912	910	-2
28.5	0.6	29.1	28.2	-0.9	1460FW	-22	1438	1451	13
28.8	0.6	29.4	29.0	-0.4	1435FW	-21	1414	1451	37
29.0	0.6	29.6	28.8	-0.8	1425FW	-21	1404	1451	47
28.5	0.6	29.1	28.4	-0.7	1875	-22	1853	1863	10
27.5	0.6	28.1	27.4	-0.7	1940	-22	1918	1922	4
29.8	0.6	30.4	29.2	-1.2	1935	-22	1913	1922	9
29.5	0.6	30.1	30.4	0.3					
30.0	0.6	30.6	32.0	1.4					
31.0	0.6	31.6	30.5	-1.1					
31.0	0.6	31.6	31.0	-0.6					
31.3	0.6	31.9	31.2	-0.7					
32.0	0.6	32.6	32.0	-0.6					
32.0	0.6	32.6	31.5	-1.1					
32.3	0.7	33.0	32.7	-0.3	70.5	0.6	71.1	69.0	-2.1
34.2	0.7	34.9	34.8	-0.1	76.0	0.6	76.6	72.2	-4.4
35.0	0.7	35.7	33.8	-1.9	111	0.0	111	109.4	-1.6
37.0	0.7	37.7	36.2	-1.5					3)8.1
37.5	0.7	38.2	37.4	-0.8					-2.7
37.5	0.7	38.2	37.7	-0.5					
41.8	0.8	42.6	41.8	-0.8					
42.0	0.8	42.8	42.0	-0.8					
42.8	0.8	43.6	43.8	0.2					
43.2	0.8	44.0	45.5	1.5					
47.5	0.8	48.3	41.6	(-6.7)					
48.4	0.8	49.2	48.7	-0.5					
49.0	0.8	49.8	49.25	-1.3					
49.0	0.8	49.8	47.2	-2.6					
49.8	0.8	50.6	49.7	-0.9					
50.5	0.8	51.3	49.8	-1.5					
52.5	0.8	53.3	52.4	-0.9					
52.7	0.8	53.5	51.6	-1.9					
54.0	0.8	54.8	52.5	-2.3					
57.5	0.7	58.2	56.0	-2.2					
63.5	0.7	64.2	58.7	(-5.5)					
64.1	0.7	64.8	63.2	-1.6					
65.0	0.7	65.7	64.6	-1.1					
70.0	0.6	70.6	69.5	-1.1					
71.5	0.8	72.1	72.5	0.4					
70.8	0.6	71.4	72.0	0.6					
72.8	0.6	73.4	72.2	-1.2					
82.0	0.5	82.5	81.0	-1.5					
30.5	0.6	31.1	30.0	-1.1					
181.0	-1.3	179.7	179.1	-0.6					
18.2	0.1	18.3	18.6	0.2					
52.5	0.8	53.3	52.4	-0.9					
			50)	-40.8					
				-0.8					

Mean for index correction - - -

TABLE C No. 2 Small Oscillator
Comparison of the Fathometer Readings and the Vertical Casts

Fathometer Readings	Theor. Corr.	Theor. Fathometer	V.C. Diff.	Fathometer Readings	Theor. Corr.	Theor. Fathometer	V.C. Diff.
29.0	1.5	30.5	28.3 -2.2				
28.0	1.5	29.5	28.4 -1.1				
41.5	1.4	42.9	41.8 -1.1	LONG DASH			
46.5	1.3	47.8	46.1 -1.7	108.0	0.3	108.3	108.0 -0.3
49.0	1.3	50.3	48.6 -1.7	235	-2	233	230 -3
49.5	1.3	50.8	48.5 -2.3	371	-5	366	359 -7
50.1	1.3	51.4	50.0 -1.4	370	-5	365	361.2 -3.8
50.5	1.3	51.8	49.7 -2.1	369	-5	364	361.2 -2.8
50.7	1.3	52.0	49.8 -2.2				5) -16.9
52.3	1.3	53.6	51.6 -2.0	Mean for the LONG DASH			-3.4
70.5	1.0	71.5	69.5 -2.0				7 166
72.0	1.0	73.0	73.0 -3.0				- 4.2
82.5	0.8	83.3	81.0 -2.3				
103.0	0.5	103.5	101.5 -2.0				4.2 - 1.7 = 2.5
107.5	0.4	107.9	108.0 0.1				
113.0	0.3	113.3	114.0 0.7				
113.5	0.3	113.8	114.3 0.5				
123.0	0.1	123.1	122.3 -0.8				
127.5	0.1	127.6	126.0 -1.6				
254	-2	232	230 -2				
235	-2	233	230 -3				
274	-3	271	268 -3				
274	-3	271	268 -3				
286	-3	283	289.5 (6.5)				
244	-2	242	243 1				
305	-4	301	297 -4				
367	-5	362	359 -3				
369	-5	364	359 -5				
353	-5	348	348 0				
353	-5	348	348 0				
520	-8	512	508 -4				
516	-8	508	508 0				
545	-8	537	550 13				
546	-8	538	539 1				
924	-15	909	910 1				
930	-15	915	910 -5				
1056	-18	1038	1030 -8				
975	-16	959	961 2				
2215	-20	2195	2178 -17				

Mean Index Correction 0 to 200 fm. = -1.5
 " " " 200 to 2215 = -1.9
 " " " 0 to 2215 = -1.7
 Mean Index Correction used - - - - - -1.7

FATHOMETER CORRECTIONS

Project #120 - All but Santa Monica.
Up to end of September, 1933.

#3 Big			#2 Small		
Depth		Corr'n	Depth		Corr'n
(Fms)			(Fms)		
10 - 10 $\frac{1}{2}$		-2 $\frac{1}{2}$	10 - 40		0
11 - 12		-2	40 $\frac{1}{2}$ - 76		- $\frac{1}{2}$
12 $\frac{1}{2}$ - 14 $\frac{1}{2}$		-1 $\frac{1}{2}$	76 $\frac{1}{2}$ - 102		-1
15 - 18 $\frac{1}{2}$		-1	102 $\frac{1}{2}$ - 106		- $\frac{1}{2}$
19 - 27 $\frac{1}{2}$		- $\frac{1}{2}$	106 $\frac{1}{2}$ - 112		-1
28 - 80		0	113 - 165		-2
80 $\frac{1}{2}$ - 101 $\frac{1}{2}$		- $\frac{1}{2}$	116 - 215		-3
102 - 107 $\frac{1}{2}$		0	216 - 260		-4
108 - 140		-1	261 - 305		-5
141 - 194		-2	306 - 350		-6
195 - 240		-3	351 - 400		-7
241 - 285		-4	401 - 450		-8
286 - 335		-5	451 - 500		-9
336 - 390		-6	501 - 560		-10
391 - 440		-7	561 - 610		-11
441 - 495		-8	611 - 670		-12
496 - 550		-9	671 - 725		-13
551 - 600		-10	726 - 780		-14
601 - 660		-11	781 - 835		-15
661 - 715		-12	836 - 885		-16
716 - 765		-13	886 - 935		-17
766 - 820		-14	936 - 990		-18
821 - 875		-15	991 - 1050		-19
876 - 930		-16	1051 - 1100		-20
931 - 980		-17	1101 - 1160		-21
981 - 1030		-18	1161 - 1270		-22
1031 - 1080		-19	1271 - 1420		-23
1081 - 1140		-20	1421 - 2000		-24
1141 - 1250		-21	2001 - 2100		-23
1251 - 1400		-22			
1401 - 2000		-23			
2000 - 2100		-22			

* For FR x 6 Sdgs add ^{algebraically} 7 fms to above corrections
" Long Dash " subtract 3 " " "

(Long Dash Corrections are greater negatively
than short dash Corrections JRJ)

* It is doubtful if this should have been along
owed.

FATHOMETER CORRECTIONS FOR L. DAY,

Sheet No. 42, Oct. 5, 1934. *to Feb. 25, 1935*

The corrections for this day's work were taken from Sheet No. 51. The two areas are in the same general locality and this work on sheet No. 42 was done shortly after that on Sheet No. 51.

ows

FINAL FATHOMETER CORRECTIONS

Sheet No. 42.

October 5, 1934. ~~1~~ 7 Feb 23, 1935

#1 Hydro. Big Osc.

Depth	Cor'n
13 - 87½	+2
88 - 100	+1½

No. 3 Hydro. Big Osc.

Depth	Cor'n.
14 - 19	+1
19½ - 32½	+1½
33 - 63	+2
63½ - 100	+1½

comp Hrk

220

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 3, 1935.

Division of Hydrography and Topography:

✓ Division of Charts: Attention Mr. E. P. Ellis

Tide Reducers are approved in
6 volumes of sounding records for

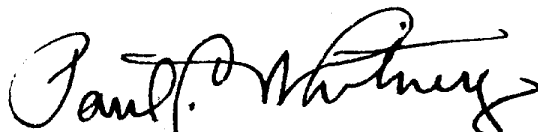
HYDROGRAPHIC SHEET 5773

Locality Offshore San Miguel Island, California.

Chief of Party: O. W. Swainson in 1933, 1935
Plane of reference is mean lower low water reading
3.6 ft. on tide staff at Santa Barbara
16.5 ft. below B.M. 1

Height of mean high water above plane of reference is 4.6 feet.

Condition of records satisfactory except as noted below:


Chief, Division of Tides and Currents.

GEOGRAPHIC NAMES
CALIFORNIA

Date. May 20, 1935

Survey No. H5773

Chart No. 5202

Diagram No. 5202-2

Approved by the Division of Geographic Names, Department of Interior. ✕

Referred to the Division of Geographic Names, Department of Interior. R

Under investigation. Q

[illegible]

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. ...5773

The following statistics will be submitted with the
cartographer's report on the sheet:

Number of positions on sheet	1368
Number of positions checked	173
Number of positions revised	0
Number of soundings recorded	7807
Number of soundings revised	17
Number of signals erroneously plotted or transferred	0

Date: JUNE 8, 1935

Inked by J. HONICK
Verification by L. B. BERES.
J. A. McCormick

Review by

H. T. Welsh
R. J. Christman

17½ hrs
Time: 28 hrs
1 hr.
Time: 15½ hrs.
5 "

HYDROGRAPHIC SURVEY NO. H5773

Smooth Sheet 1 1 Overlay

Boat Sheet 1

Sounding Records 6 Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals Yes in Vol. 1

Landmarks for Charts (Form 567) No

Statistics Yes

Approved by Chief of Party O. W. Swainson

Recoverable Station Cards (Form 524)

Special Chart for Lighthouse Service No
(Circular Nov. 30, 1933)

Remarks

VERIFIER'S REPORT H-5773

1. The records conform to the general instructions. ←
2. The 50, 100, 200, ~~300~~ fathom curves can be completely drawn within the limits of the survey. ←
3. The field plotting was complete. ←
4. The drafting was complete and satisfactory. ←
5. Junctions with adjacent sheets ~~was satisfactory~~ were satisfactory H-5776, H-5775, H-5683, H-5700, H-5701
6. The plotting was very accurate and very few discrepancies were noted. ←
 - a. In volumes II, III, and IV the letter S or the notation Same should be used when the same signals are used ~~xxxx~~ on successive positions. Signals should also be entered at the top of each page. Do not carry over the notation Same from the preceding page. ←

Respectfully submitted

L. B. Beres
L. B. Beres

Verpea's Report on Wire Drag on H-5773.

It is thought that Comdr. Swanson intended this work more for the guidance of the launches in locating least depths on the shoals in question than to show a swept area.

It will be noted that the sweep hung up and broke on position #3a (red). Sounding of 13 fathoms 5 feet was obtained. A grounding could not be plotted with the information available. It is entirely possible that the wire sweep would sag enough to cause the difference between the effective depth at the uprights (56 feet) and the sounding.

In any event the information available is not sufficient to show groundings or effective depths.

Least depth obtained on the grounding was plotted. ←

July 31, 1935.

Submitted,
James Cornick

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5773 (1933-35) - FIELD NO. 42

Offshore San Miguel Island, Santa Barbara Islands, California

Surveyed in Apr. 1933-Feb. 1935

Instructions dated Nov. 18, 1932-June 23, 1934 (PIONEER)

Fathometer Soundings - 3 Point Fixes on Shore Signals.

Chief of Party - O. W. Swainson.

Surveyed by - O. W. Swainson.

Protracted by - G. M. Marchand, H. J. Pulskamp, E. M. Prudames.

Soundings penciled by - G. M. Marchand, H. J. Pulskamp.

Verified and inked by - L. B. Beres and J. Honick.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except as follows:

- a. The position numbers and day letters were not in color in the title pages and covers of the records to conform with the records.
- b. A copy of the special chart for Lighthouse Service, and Form 567 (Landmarks for Charts) have not been received in the office.

The descriptive report is clear and comprehensive and adequately covers all matters of importance.

2. Compliance with Instructions for the Project.

The plan, character, and extent of the survey comply with the instructions for the project.

3. Sounding Line Crossings.

Sounding line crossings are in very good agreement.

4. Depth Curves.

The usual depth curves may be drawn satisfactorily.

5. Junctions with Contemporary Surveys.

The junctions with inshore surveys H-5700 (1934-35), H-5701 (1934-35), H-5683 (1934), and offshore surveys H-5775 (1933), H-5776 (1933-34) are satisfactory except that the shoal indications in the junction with H-5683 (1934) north of San Miguel Island have not been developed, (see par. 9b of this review).

6. Comparison with Prior Surveys.

a. H-289 (1851).

This survey was a reconnaissance on a very small scale. The few soundings that fall within the area of the present survey are in excellent agreement with it.

b. H-1333a and b (1875-76), H-1334a and b (1875-76).

These surveys on a 1:20,000 scale cover with fair development the area of the present survey, as far offshore as the 100 fathom curve on the south side of the islands, and the 50 fathom curve on the north side.

In the area common to the two surveys some of the 1875-76 hydrography appears on both H-1334a and H-1333a. It was evidently plotted on H-1333a and transferred to H-1334a. Some differences were found on these sheets and in any future use of them when the same soundings appear on both, H-1333a should be used.

There is a very good agreement between these surveys and H-5773 (1933-35). A few scattered slightly shoaler soundings which were not disproved by the present work were carried forward.

Among the soundings carried forward is a 59 fathom sounding in lat. $33^{\circ} 59.8'$, long. $120^{\circ} 28.2'$ which may be erroneous. These soundings are wire soundings widely spaced and this sounding is unsupported by similar depths. ✓

c. H-1370 (1877).

This survey on a 1:100,000 scale included only a few soundings along the north edge of H-5773 (1933-35). These are in good agreement.

d. H-4550 (1926), H-4559 (1925-26).

These surveys on a 1:120,000 scale included only a few soundings at the southeast tip of the present survey. This hydrography in 1925 and 1926 was taken with the sonic depth finder and all such soundings should be superseded by the later modern Fathometer work on H-5773.

7. Comparison with Chart 5202.

a. Hydrography.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and contains no additional information that needs consideration in this review.

b. Floating Aids.

The lighted whistle buoy at lat. $34^{\circ} 01.3'$, long. $120^{\circ} 27.7'$ is in substantial agreement with the position as charted. Two positions are given on H-5773 (1934), the western position being that of the buoy during the survey and the other being the position to which it was replaced after being adrift.

8. Field Plotting.

Field protracting and plotting were excellent, and conform to the requirements of the Hydrographic Manual.

9. Doubtful Soundings.

a. Referring to par. 4 page 3 of the Descriptive Report, a 19 fathom sounding (lat. $34^{\circ} 05.1'$, long. $120^{\circ} 27.0'$) falls in depths of 27 and 28 fathoms on the inshore sheet (H-5683 of 1934) surveyed by R. W. Knox. Although the 19 fathom sounding may be in error 10 fathoms in reading the Fathometer, it has been retained as this general locality has very irregular bottom and there is a possibility of its existence in the position assigned. ✓

b. A number of shoal indications on this survey at its junction with H-5683 (1934-35) north of San Miguel Island, have not been investigated. The prior survey (H-1333b of 1875-76) does not show any indications of shoal areas in these places. It was expected by the Chief of Party that these shoal indications would be developed by Lieutenant R.W. Knox during the inshore survey, H-5683 (1934-5), but this was not accomplished. (See par. 4 page 3 of the descriptive report). ✓

The following soundings in some cases may have been read incorrectly on the Fathometer but in any case they should have been investigated. Their investigation is recommended when work is resumed in this locality.

20 fathoms in lat. $34^{\circ} 07.35'$, long. $120^{\circ} 27.2'$
 13 3/4 " from H-1333b (1875-76) in lat. $34^{\circ} 07'$,
 long. $120^{\circ} 26.6'$
 13 fathom shoal in lat. $34^{\circ} 05.8'$, long. $120^{\circ} 22'$ ✓
 20 fathoms in lat. $34^{\circ} 05.65'$, long. $120^{\circ} 21.8'$ ✓
 13 " " lat. $34^{\circ} 05.6'$, long. $120^{\circ} 21.6'$ ✓
 17 " " lat. $34^{\circ} 05.35'$, long. $120^{\circ} 21.4'$ ✓
 15 " " lat. $34^{\circ} 03.9'$, long. $120^{\circ} 19.4'$ ✓
 15 " " lat. $34^{\circ} 03.8'$, long. $120^{\circ} 19.15'$ ✓

10. Additional Field Work Recommended.

a. The shoal indications described in par. 9 should be further developed when work is resumed in this vicinity and the 59

fathom sounding mentioned in par. 6b should be examined.

- b. In view of the importance of this area to the U.S. Navy, it might be desirable to wire drag the area off the north and western sides of San Miguel to the 50 fathom curve beyond Richardson Rock. (See recommendation by field party, par. 5 page 2 of descriptive report).

11. Superseding Old Surveys.

Within the area covered the present survey, with the indicated additions from previous surveys, supersedes the following surveys for charting purposes:

H-289 (1851)	in part
H-1333a & b (1875-76)	in part
H-1334a & b (1875-76)	in part
H-1370 (1877)	in part
H-4550 (1926)	in part
H-4559 (1925-26)	in part

12. Reviewed by - Harry T. Kelsh, August 6, 1935, and
R. J. Christman, August 13, 1935.

Inspected by - R. L. Johnston.

Examined and approved:

K. T. Adams

K. T. Adams,
Assist. Chief, Division of Charts.

L. O. Robert

Chief, Division of Charts.

J. S. Borden

Chief, Section of Field Work.

Act

R. P. Lukens

Chief, Division of H. & T.

applied to chart 5116 Apr 6, 1935

Aug

applied to chart 5202 - Mar 1936

Lm3

Applied to Chart 5066 12/7/63 John P. Lewis

FATHOMETER CORRECTIONS FOR PROJECT NO. 120 - AFTER SEPTEMBER 30, 1933.

Field sheets 45, 46, 122 and 123. 70 Feb. 1, 1934

Since there were very few temperature and salinity observations made in the locality covered by the soundings during this period, the curve for all the theoretical corrections for the period prior to the above date was assumed correct and used. These values, for the large oscillator and number three (Navy rat) hydrophone, and the small oscillator and number two (tuned) hydrophone, are shown in table A. Since it had been noted throughout the season that the initial flash was shown at an average point of six fathoms when the large oscillator-number three hydrophone combination was used, it was decided that an additional theoretical correction of plus 1.8 fathoms should be applied to cover the error introduced by the dial reading at the instant the sound was produced. This value was obtained by the following reasoning - - when the oscillator produces a sound, the impulse is spread in all direction through the water at approximately the same velocity. Therefore, by the time the sound wave reaches the hydrophone - which in this case is 93 feet away from the oscillator - and is transmitted to the fathometer dial as an initial flash, it also has travelled an equal distance toward the bottom. Since the depth read on the fathometer dial is exactly half of the distance traveled by the sound wave, it would be necessary for the initial flash to come in at 7.8 fathoms if the oscillator tripped when the dial read zero. But, as the initial flash occurred at 6 fathoms, the sound must have started when the dial read 98.2, thus making a correction of 1.8 fathoms to be added to the read sounding. With the number two hydrophone-small oscillator combination, which has only a 24 foot base line, this correction was found to be less than one-half fathom, therefore it was not included as a theoretical correction, but was taken up by the index correction.

The determination of an index correction by comparison of theoretically corrected fathometer soundings and corresponding vertical casts will be found in table B. Since the fathometer was repaired on November 21, it was necessary to compute index corrections for each of two periods, before and after that date. There were very few soundings taken after November 21 with the number two hydrophone-small oscillator combination, and consequently only one comparison was taken during that period. In order to arrive at some index correction, it was found necessary to use three comparisons that had been made during this period near San Clemente Island, and which had been included in the index correction for that area. However, the mean of three - one of the four was obviously wrong - gave an index which appeared to be very nearly correct. The five index corrections computed in table B were then applied, in table C, to the corresponding total theoretical corrections, and the results plotted as a set of curves, Numbers 1, 2, 3, 4, and 5, from which were picked the depth ranges for the various final corrections.

Table A

Theoretical Fathometer Corrections

Large Oscillator-Number 3 Hydrophone Combination.

True Depth	Indicated Depth	Total Theor. Crn. (from curves of period before Sept. 30-33.	Crn. for Initial Contact	Total Theor. Correction
Fms.	Fms.	Fms.	Fms.	Fms.
4	7.8	-3.8	1.8	-2.0
6	8.4	2.4		.6
8	9.7	1.7		+ .1
10	11.0	1.0		.8
12	12.6	.6		1.2
14	14.3	.3		1.5
16	16.1	.1		1.7
18	17.9	0.1		1.9
20	19.8	.2		2.0
24	23.6	.4		2.2
28	27.4	.6		2.4
32	31.4	.65		2.45
42	41.2	.8		2.6
52	51.2	.8		2.6
62	61.3	.7		2.5
72	71.4	.6		2.4
82	81.5	.5		2.3
92	91.7	.3		2.1
102	101.8	.2		2.0
112	112.0	0.0		1.8
122	122.1	-0.1		1.7
142	142.5	.5		1.3
162	162.9	.9		0.9
182	183.3	1.3		.5
202	203.7	1.7		.1
242	244.5	2.5		-0.7
282	285.4	3.4		1.6
322	326.2	4.2		2.4
362	367.1	5.1		3.3
402	407.9	5.9		4.1

(continued)

Table A (continued)

Theoretical Pathometer Corrections

Small Oscillator- Number 2 Hydrophone Combination.

True Depth	Indicated Depth	Theor. Grn. (from curves of period before Sept. 30-33)
Fms.	Fms.	Fms.
4	2.4	1.6
6	4.0	2.0
8	5.8	2.2
10	8.0	2.0
12	10.1	1.9
14	12.1	1.9
16	14.2	1.8
18	16.2	1.8
20	18.2	1.8
24	22.3	1.7
28	26.4	1.6
32	30.5	1.5
42	40.6	1.4
52	50.7	1.3
62	60.9	1.1
72	71.0	1.0
82	81.2	.8
92	91.3	.7
102	101.5	.5
112	111.7	.2
122	121.9	.1
142	142.3	-0.3
162	162.6	.6
182	183.0	1.0
202	203.3	1.3
242	244.2	2.2
282	285.2	3.2
322	326.0	4.0
362	367.0	5.0
402	407.7	5.7
442	448.5	6.5
482	489.2	7.2

104.2

+1.3

Table B.

Determination of an Index Correction.

Number 3 Hydrophone - Large Oscillator. - Before November 21, 1933.

Fmtr. Sndg.	Theor. Crn.	Corrected Fmtr. Sndg.	Vert. Cast	I. C.
Fms.	Fms.	Fms.	Fms.	Fms.
93.5	2.1	95.6	91.7	-3.9
84.5	2.2	86.7	83.2	-3.5
98.5	2.0	100.5	98.4	-2.1
				<u>-9.5</u>
				Ave. 10 <u>-3.2</u>

Number 3 Hydrophone - Large Oscillator - After November 21, 1933.

30.5	+2.2	32.7	31.8	-0.9
30.0	2.2	32.2	31.5	0.7
77.5	2.3	79.8	79.0	0.8
15.5	1.6	17.1	16.2	0.9
15.1	1.6	16.7	16.1	0.6
18.0	1.9	19.9	19.0	0.9
55.3	2.6	57.9	58.4	+0.5
55.6	2.6	58.2	57.5	-0.7
51.7	2.6	54.3	55.1	+0.8
52.5	2.6	55.1	53.8	-1.3
44.0	2.6	46.6	46.4	0.2
42.5	2.6	45.1	43.9	1.2
29.8	2.4	32.2	32.6	+0.4
30.5	2.4	32.9	31.7	-1.2
24.2	2.2	26.4	25.8	0.6
42.2	2.6	44.8	43.6	1.2
23.0	2.2	25.2	24.1	1.1
22.8	2.2	25.0	24.1	0.9
22.8	2.2	25.0	24.1	0.9
12.5	1.1	13.6	13.3	0.3
12.7	1.2	13.9	13.2	0.7
12.3	1.0	13.3	13.2	0.1
28.5	2.4	30.9	30.2	0.7
39.0	2.6	41.6	40.4	1.2
39.0	2.6	41.6	40.6	1.0
10.5	.5	11.0	11.8	+0.8
10.3	.4	10.7	11.9	1.2
10.5	.5	11.0	11.7	0.7
39.0	2.6	41.6	41.4	-0.2
38.5	2.6	41.1	41.0	0.1
54.2	2.6	56.8	55.4	1.4
54.2	2.6	56.8	55.6	1.2
45.5	2.6	48.1	46.9	1.2
45.3	2.6	47.9	46.9	1.0
25.2	2.3	27.5	26.6	0.9
27.5	2.4	29.9	29.4	0.5
28.0	2.4	30.4	29.5	0.9

(continued)

Table B. (continued)

Fmtr. Sndg.	Theor. Crn.	Corrected Fmtr. Sndg.	Vert. Cast	I. C.
Fms.	Fms.	Fms.	Fms.	Fms.
27.5	2.4	29.9	28.4	-1.5
28.0	2.4	30.4	29.0	1.4
28.0	2.4	30.4	29.0	1.4
11.0	0.8	11.8	12.3	+0.5
10.5	0.5	11.0	11.9	+0.9
				<u>-24.0</u>
				Ave. I.C. -0.6

Number 2 Hydrophone - Small Oscillator - Short Dash - Before November 21, 1933.

244.0	-2.2	241.8	243.0	1.2
353.0	-4.6	348.4	348.1	-0.3
97.0	+ .6	97.6	95.2	-2.4
118.0	.3	118.3	116.3	-2.0
81.7	.9	82.6	81.2	-1.4
99.0	.6	99.6	97.6	-2.0
				<u>-6.9</u>
				Ave. I.C. -1.2

Number 2 Hydrophone - Small Oscillator - Long Dash - Before November 21, 1933.

228.0	-1.8	226.2	223.4	-2.8
101.0	+0.7	101.7	95.2	-6.5
				<u>-9.3</u>
				Ave. I.C. -4.6

Number 2 Hydrophone - Small Oscillator - Short Dash - After November 21, 1933.

78.2	+0.8	79.0	79.0	0.0
209.0	-1.5	207.5	208.8	+1.3
52.5	+1.3	53.8	53.4	-0.4
420.0	-6.0	414.0	419.8	+5.8
				<u>+0.9</u>
				Ave. I.C. +0.3

Table CComputation of Final Corrections for Fathometer Soundings.

Number 2 Hydrophone- Small Oscillator Combination.

Ind. Fmtr. Depth	Theor. Corr.	Short Dash Before Nov. 21 I.C. -1.2	Long Dash Before Nov. 21 I.C. -4.6	Short Dash After Nov. 21 I.C. +0.3
Fms.	Fms.	Fms.	Fms.	Fms.
2.4	+1.6	+0.4	-3.0	+1.9
4.0	2.0	.8	2.6	2.3
5.8	2.2	1.0	2.3	2.5
8.0	2.0	.8	2.6	2.3
10.1	1.9	.7	2.7	2.2
12.1	1.9	.7	2.7	2.2
14.2	1.8	.6	2.8	2.1
16.2	1.8	.6	2.8	2.1
18.2	1.8	.6	2.8	2.1
22.3	1.7	.5	2.9	2.0
26.4	1.6	.4	3.0	1.9
30.5	1.5	.3	3.1	1.8
40.6	1.4	.2	3.2	1.7
50.7	1.3	.1	3.3	1.6
60.9	1.1	-0.1	3.5	1.4
71.0	1.0	.2	3.6	1.3
81.2	0.8	.4	3.8	1.1
91.3	.7	.5	3.9	1.0
101.5	.5 $\swarrow +1.3$.7 $\swarrow +0.1$	4.1 $\swarrow -3.3$.8 $\swarrow +1.6$
111.7	.2	1.0	4.4	.5
121.9	.1	1.1	4.5	.4
142.3	-0.5	1.3	4.9	0.0
162.6	.6	1.8	5.2	-0.3
183.0	1.0	2.2	5.6	.7
203.3	1.3	2.5	5.9	1.0
244.0	2.2	3.5	6.8	1.9
285.2	3.2	4.4	7.8	2.9
326.0	4.0	5.2	8.8	3.7
367.0	5.0	6.2	9.6	4.7
407.7	5.7	6.9	10.3	5.4
448.3	6.5	7.7	11.1	6.2
489.2	7.2	8.4	11.8	6.9

Table C (continued)

Computation of Final Corrections for Fathometer Soundings

Number 3 Hydrophone - ^{Large}~~Small~~ Oscillator Combination.

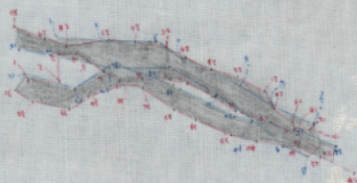
Ind. Fmtr. Depth	Theor. Cmn.	Short Dash- Before Nov. 21 I. C. -3.2 Final Cmn.	Short Dash After Nov. 21 I. C. -0.6 Final Cmn.
Fms.	Fms.	Fms.	Fms.
7.8	-2.0	-3.2	-2.6
8.4	0.6	3.8	1.2
9.7	+0.1	3.1	0.5
11.0	0.8	2.4	+0.2
12.6	1.2	2.0	0.6
14.3	1.5	1.7	0.9
16.1	1.7	1.5	1.1
17.9	1.9	1.3	1.3
19.8	2.0	1.2	1.4
23.6	2.2	1.0	1.6
27.4	2.4	.8	1.8
31.4	2.45	.75	1.85
41.2	2.6	.6	2.0
51.2	2.6	.6	2.0
61.3	2.5	.7	1.9
71.4	2.4	.8	1.8
81.5	2.3	.9	1.7
91.7	2.1	1.1	1.5
101.8	2.0 ^{1.2}	1.2 ^{2.0}	1.4 ^{0.6}
112.0	1.8 ^{1.2}	1.4 ^{2.0}	1.2 ^{0.3}
122.1	1.7	1.5	1.1
142.3	1.3	1.9	.7
162.9	.9	2.3	.3
183.3	.5	2.7	-0.1
203.7	.1	3.1	.5
244.5	.7	3.9	1.3
285.4	1.6	4.8	2.2
326.2	2.4	5.6	3.0
367.1	3.3	6.5	3.9
407.9	4.1	7.3	4.7

120°-28'

120°-26'

34°-08'

34°08'



34°-06'

34° 06'

OVERLAY SHEET No. 42
AREA SWEEP BY WIRE DRAG TO
DEPTH OF 10 FATHOMS
No Shoal Discovered

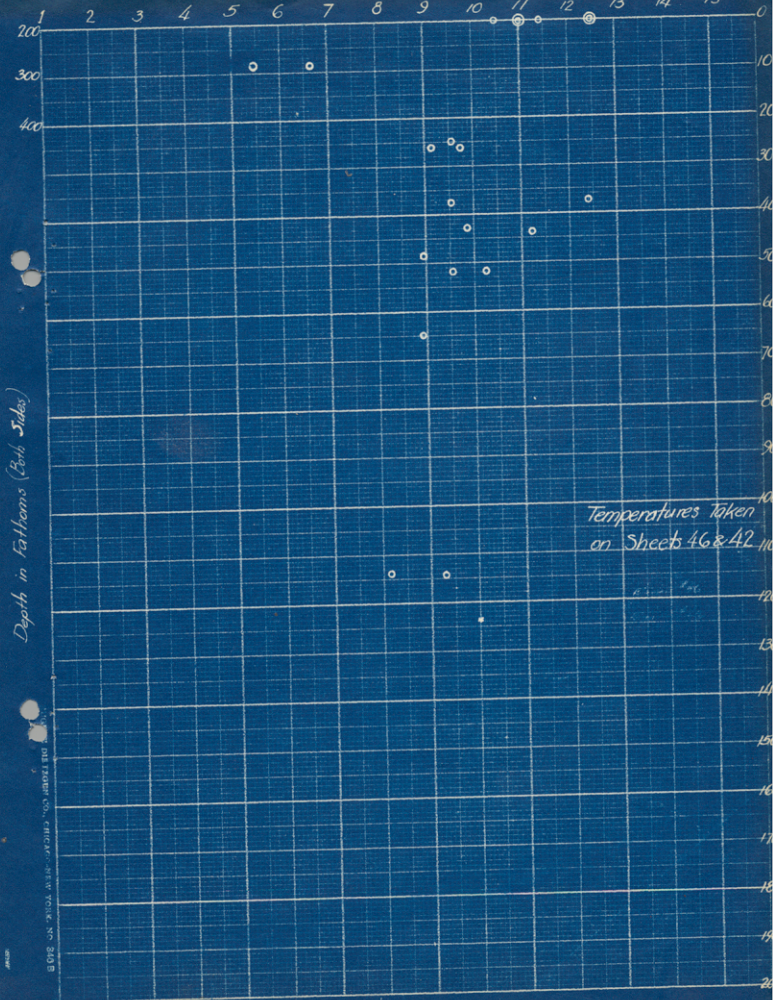
5773

120°-28'

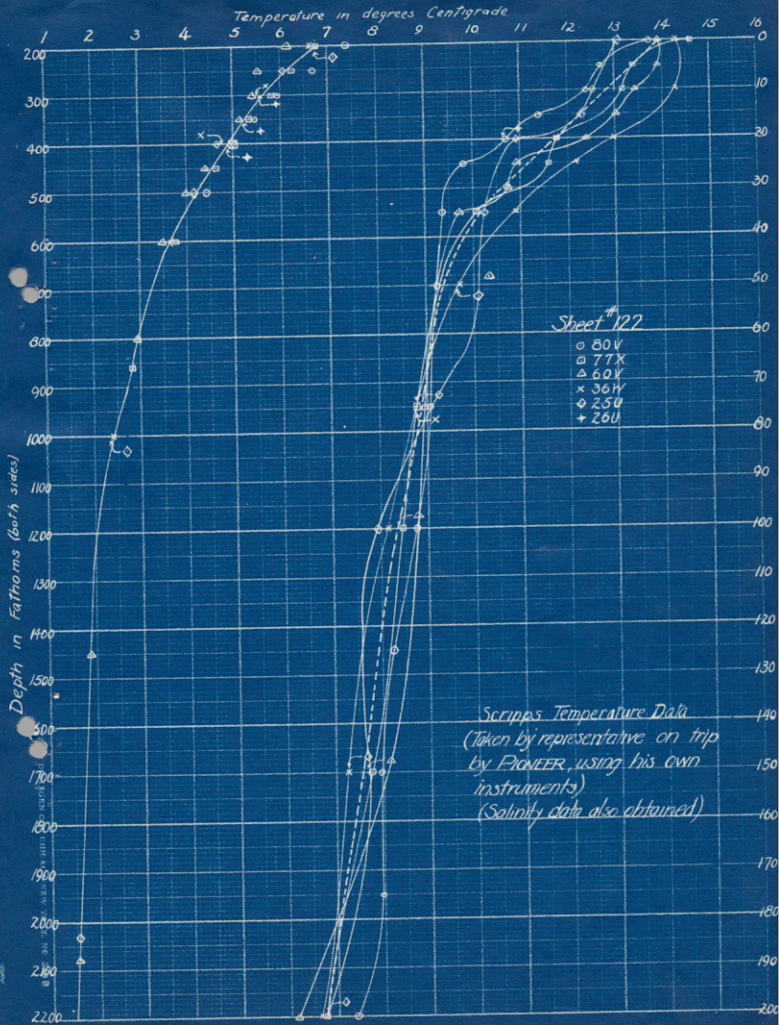
120°-26'

△ CASTLE ROCK 1875

Temperature in Degrees C.

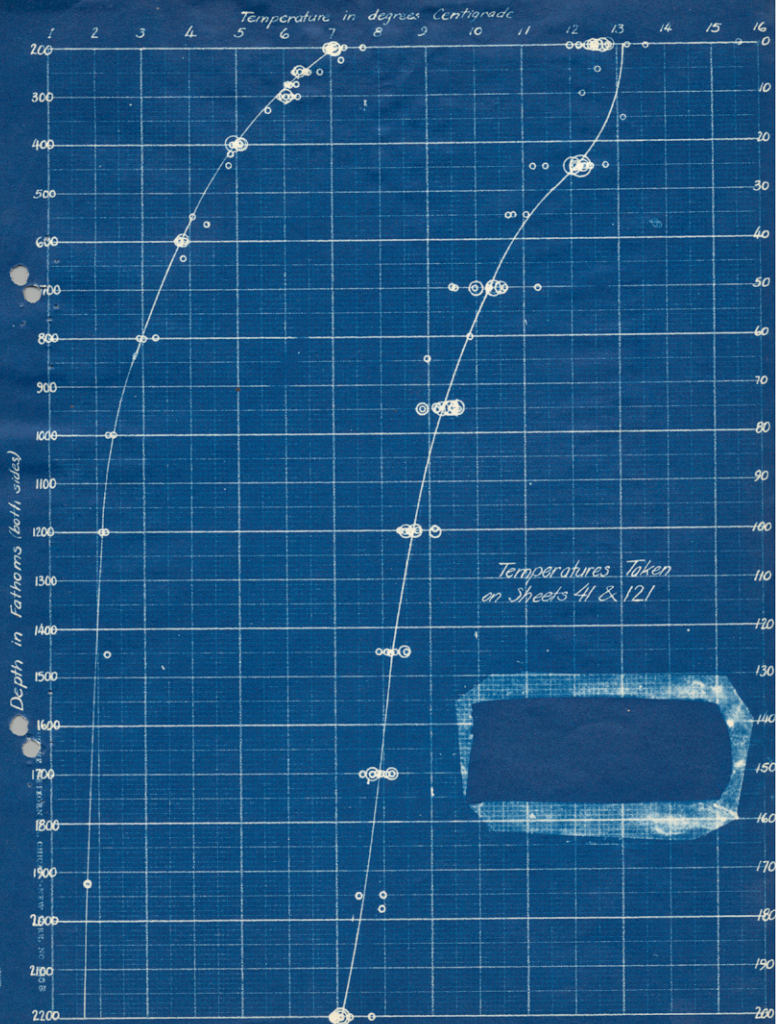


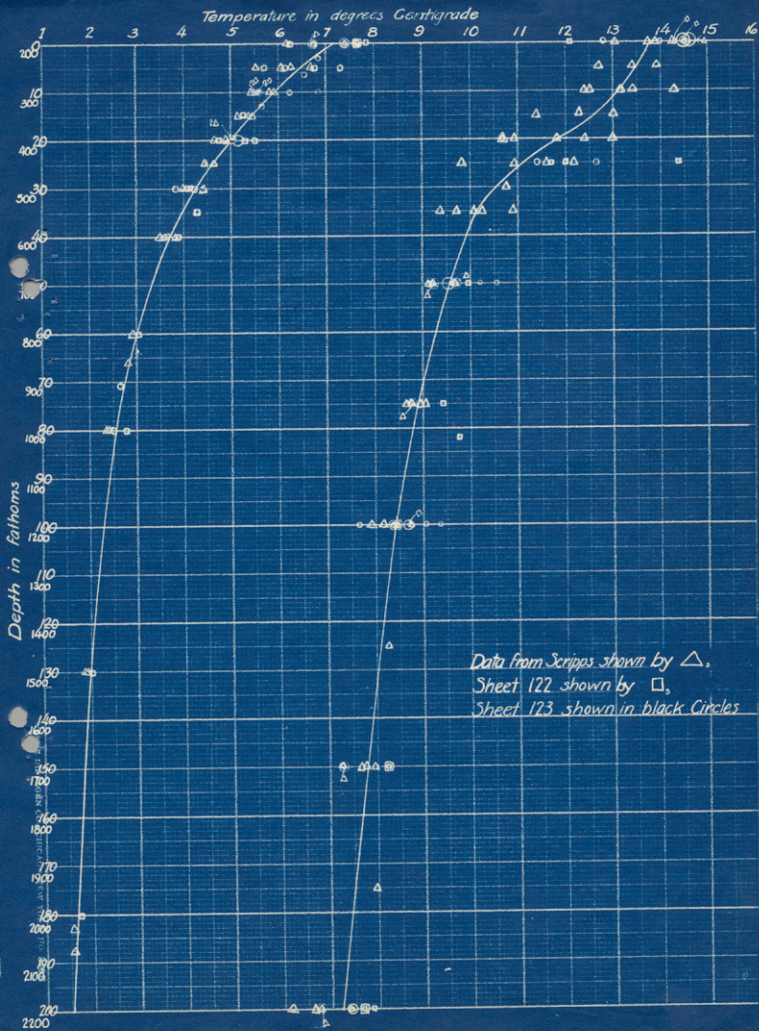
Depth in Fathoms (Both Sides)



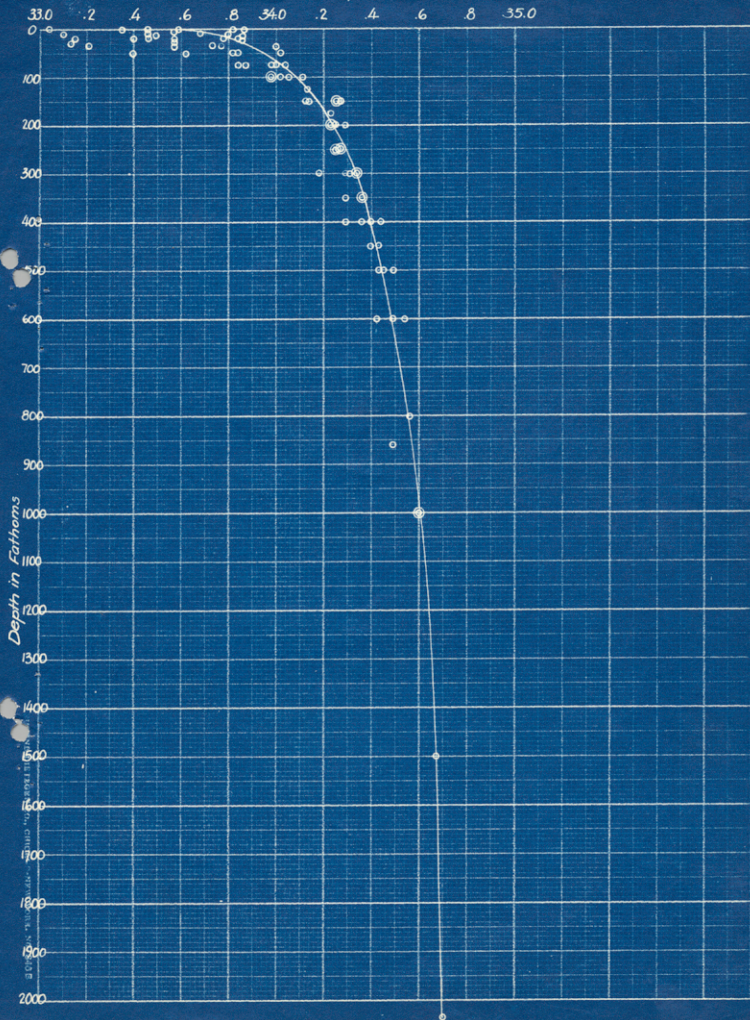
Temperature in degrees Centigrade

Depth in Fathoms (both sides)



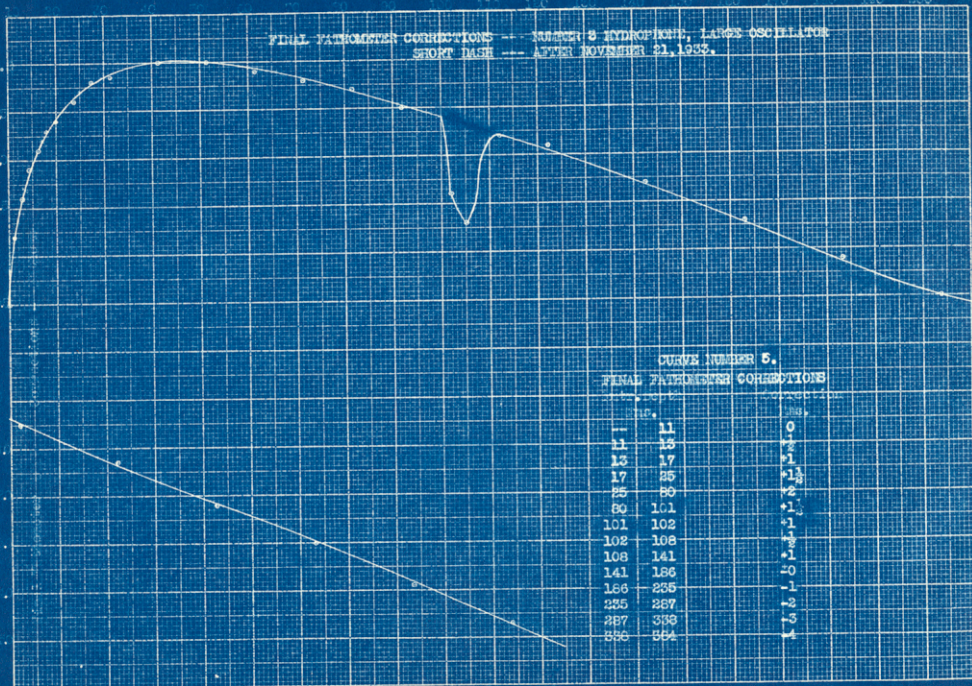


Salinities from Scripps in parts per thousand.



Scale 100 Meters --- Pressure

FINAL PATROMETER CORRECTIONS --- NUMBER 3 HYDROPHONE, LARGE OSCILLATOR
 SHORT DASH --- AFTER NOVEMBER 21, 1933.



Indicated Pathometer depth - fathoms

FINAL PATHOMETER CORRECTIONS - NUMBER 3 HYDROPHONE, LAKE OSCILLATOR-SHORT DASH
REPORT NOVEMBER 21, 1933.

CURVE NUMBER 4.

FINAL PATHOMETER CORRECTIONS

Indicated Pathometer depth - fathoms

Indicated Pathometer depth - fathoms

10 - 12	-2.1
12 - 15	-2.2
15 - 19	-1.3
19 - 38	-1.1
38 - 63	-1.2
63 - 100	-1.1
100 - 101	-1.3
101 - 103	-2
103 - 106	-2.5
106 - 158	-2
158 - 209	-3
209 - 257	-4
257 - 306	-5
306 - 354	-6
354 - 403	-7

INDICATED DEPTH

TEMPERATURE

FINAL FATHOMETER CORRECTIONS - MEISSER 2 HYDROPHONE, SMALL OSCILLATOR -- SHORT DASH
AFTER NOVEMBER 21, 1935.

CURVE NO. 2

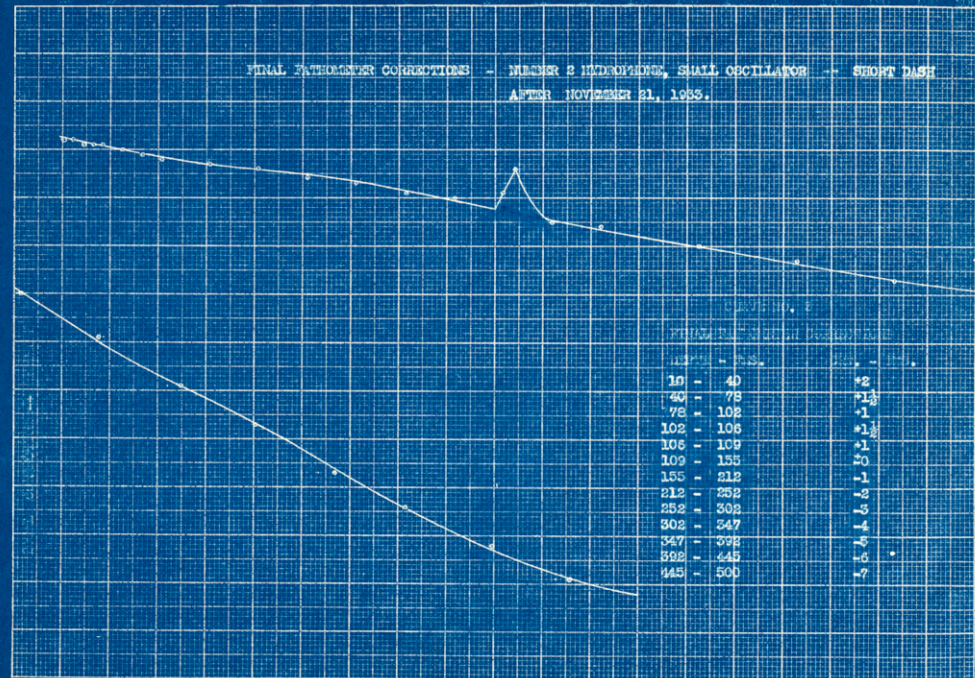
FINAL FATHOM DEEPENINGS

DEPTH - FMS.

DEPTH - FMS.

10 - 40
40 - 78
78 - 102
102 - 106
106 - 109
109 - 153
153 - 212
212 - 252
252 - 302
302 - 347
347 - 392
392 - 445
445 - 500

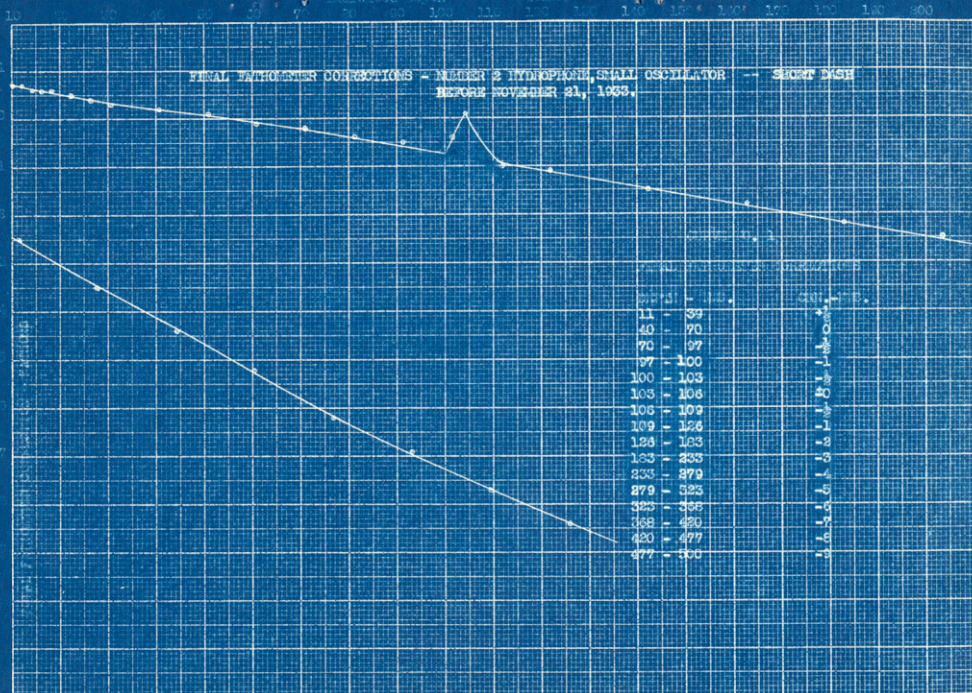
+2
+1.5
-1
+1.5
-1
50
-1
-2
-3
-4
-5
-6
-7



INDICATED DEPTH

TEMPERATURE

Indicated depth - - - - - fathoms



Final Thermometer Corrections

Depth - 100.

Temp. - 17.5.

11	- 39	17.5
40	- 70	17.0
70	- 97	16.5
97	- 100	16.0
100	- 103	15.5
103	- 106	15.0
106	- 109	14.5
109	- 126	14.0
126	- 163	13.5
163	- 233	13.0
233	- 279	12.5
279	- 323	12.0
323	- 368	11.5
368	- 420	11.0
420	- 477	10.5
477	- 500	10.0

INDICATED CORRECTION --- PATIENT

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200

FINAL PATHOMETER CORRECTIONS --- No. 2 HYDROPHONE --- SMALL OSCILLATOR - LONG DASH
BETWEEN SEPTEMBER 30, 1933 and NOVEMBER 21, 1935

TABLE No. 2

FINAL	SMALL OSCILLATOR	PATIENT
10	12	-2
12	40	-3
40	72	-3
72	102	-4
102	106	-5
106	110	-4
110	164	-5
164	215	-6
215	260	-7
260	305	-8
305	350	-9
350	402	-10
402	457	-11
457	512	-12

25 Jan 2, 1936
E.L.S.